

Water-Data Report 2013

04124000 MANISTEE RIVER NEAR SHERMAN, MI

Northeastern Lake Michigan Basin
Manistee Subbasin

LOCATION.--Lat 44°26'11", long 85°41'55" referenced to North American Datum of 1927, in NE ¼ NE ¼ sec.36, T.24 N., R.12 W., Wexford County, MI, Hydrologic Unit 04060103, on right bank 50 ft downstream from bridge on State Highway 37, 200 ft upstream from Wheeler Creek, 0.9 mi north of Sherman, and at mile 60.8.

DRAINAGE AREA.--857 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--July 1903 to May 1916, October 1930 to September 1931, October 1933 to current year. Monthly discharge only for some periods, published in WSP 1307.

REVISED RECORDS.--WSP 1004: 1936(M). WSP 1307: 1911, 1913-14(M), 1934(M), 1936(M), 1937, 1939-40(M). WSP 1437: 1911, 1913(M), 1937. WDR MI-88-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 804.24 ft above NGVD 29. Prior to Apr. 13, 1934, at various datums. Apr. 14, 1934 to Oct. 25, 1990, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Gage-height telemeter at station.

04124000 MANISTEE RIVER NEAR SHERMAN, MI—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	780	1,030	914	949	e1,580	1,040	1,600	1,740	1,420	938	862	895
2	777	1,020	998	939	e1,340	1,020	1,560	1,670	1,450	921	860	891
3	774	1,020	1,060	935	e1,190	1,010	1,470	1,620	1,340	911	885	878
4	803	1,000	1,090	929	e1,130	999	1,410	1,540	1,280	915	896	872
5	808	981	1,120	924	e1,060	990	1,420	1,450	1,240	916	872	864
6	814	969	1,130	925	e1,060	989	1,430	1,390	1,200	907	855	833
7	822	957	1,120	924	e1,130	995	1,520	1,330	1,160	900	859	819
8	811	949	1,070	921	e1,240	988	1,630	1,290	1,120	966	854	820
9	803	945	1,030	921	e1,100	983	1,820	1,240	1,100	1,040	845	827
10	833	942	1,000	920	e1,090	1,030	2,160	1,290	1,080	1,140	832	829
11	842	944	980	966	e1,190	1,300	2,490	1,380	1,080	1,120	823	824
12	849	962	961	1,140	1,210	1,720	2,480	1,430	1,080	1,090	816	824
13	890	960	950	1,380	e1,180	1,750	2,480	1,440	1,080	1,010	812	825
14	1,150	946	947	1,420	1,200	1,600	2,290	1,420	1,070	957	810	817
15	1,420	936	951	1,330	1,130	1,510	2,110	1,370	1,040	920	805	810
16	1,440	929	1,000	1,200	1,100	1,460	2,100	1,300	1,080	904	799	819
17	1,410	923	1,080	1,110	1,060	1,390	2,090	1,240	1,110	896	794	822
18	1,390	918	1,110	e1,010	1,020	1,300	2,240	1,200	1,090	884	790	814
19	1,330	914	1,100	e997	1,150	1,260	2,550	1,170	1,060	878	790	877
20	1,200	916	1,110	e1,040	1,150	1,230	2,600	1,160	1,020	871	787	1,030
21	1,130	917	1,200	1,010	1,100	1,180	2,550	1,190	998	865	783	997
22	1,090	914	1,180	e960	1,080	1,150	2,450	1,310	987	855	798	939
23	1,100	910	1,140	e940	1,080	1,130	2,220	1,480	996	852	791	909
24	1,100	903	1,110	e930	1,070	1,110	2,090	1,600	992	856	783	872
25	1,070	906	1,080	e907	1,060	1,090	2,030	1,650	976	865	777	850
26	1,090	913	1,040	e787	1,050	1,080	2,010	1,610	965	856	793	836
27	1,100	913	1,010	e787	1,050	1,080	1,960	1,470	959	864	884	825
28	1,080	911	986	e879	1,050	1,100	1,850	1,330	961	867	e1,180	817
29	1,040	911	969	1,210	---	1,170	1,760	1,300	950	884	e1,150	822
30	1,010	912	963	1,580	---	1,260	1,740	1,280	954	880	984	829
31	1,030	---	961	e1,830	---	1,440	---	1,320	---	870	923	---
Total	31,786	28,271	32,360	32,700	31,850	37,354	60,110	43,210	32,838	28,598	26,492	25,686
Mean	1,025	942	1,044	1,055	1,138	1,205	2,004	1,394	1,095	923	855	856
Max	1,440	1,030	1,200	1,830	1,580	1,750	2,600	1,740	1,450	1,140	1,180	1,030
Min	774	903	914	787	1,020	983	1,410	1,160	950	852	777	810
Cfs/m	1.20	1.10	1.22	1.23	1.33	1.41	2.34	1.63	1.28	1.08	1.00	1.00
In.	1.38	1.23	1.40	1.42	1.38	1.62	2.61	1.88	1.43	1.24	1.15	1.11

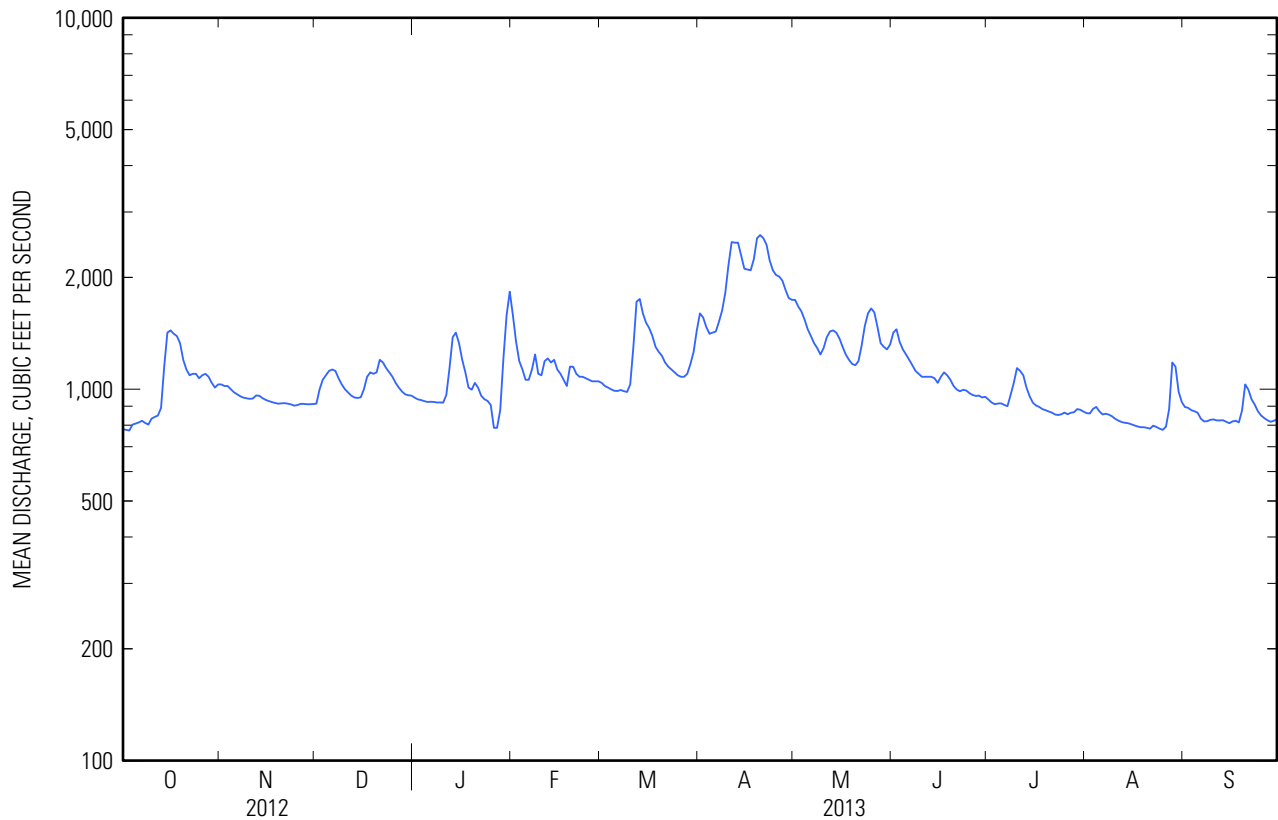
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 2013, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	972	1,046	1,035	1,002	991	1,207	1,521	1,206	1,064	932	879	902
Max	1,803	1,597	1,417	1,224	1,458	1,811	2,198	1,742	1,603	1,336	1,200	1,610
(WY)	(1987)	(1989)	(1912)	(1916)	(1938)	(1913)	(1916)	(1904)	(1954)	(1994)	(1903)	(1986)
Min	754	780	805	752	604	808	943	834	802	740	722	717
(WY)	(2001)	(1982)	(2003)	(2003)	(1936)	(1940)	(2000)	(1958)	(1958)	(1936)	(1964)	(1966)

04124000 MANISTEE RIVER NEAR SHERMAN, MI—Continued

SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1903 - 2013	
Annual total	390,839		411,255			
Annual mean	1,068		1,127		^a 1,062	
Highest annual mean					1,261	1912
Lowest annual mean					864	2003
Highest daily mean	2,290	Mar 17	2,600	Apr 20	3,500	Mar 25, 1913
Lowest daily mean	724	Sep 3	774	Oct 3	540	Feb 21, 1936
Annual seven-day minimum	743	Aug 28	787	Aug 19	549	Feb 19, 1936
Maximum peak flow			2,630	Apr 20	^b 3,570 Mar 25, 1913	
Maximum peak stage			15.39	Apr 20	^c 16.37 Jun 14, 2008	
Annual runoff (cfs)	1.25		1.31		1.24	
Annual runoff (inches)	16.97		17.85		16.84	
10 percent exceeds	1,430		1,570		1,420	
50 percent exceeds	998		1,020		980	
90 percent exceeds	806		824		813	

^a Does not include water years 1931, 1934.^b Gage height 7.1 ft, from graph based on gage readings, datum then in use.^c Does not include water years 1903-90.

04124000 MANISTEE RIVER NEAR SHERMAN, MI—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1997 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1996 to current year.

DISSOLVED OXYGEN: October 1996 to current year.

INSTRUMENTATION.--Water-quality monitor telemeter, set for one-hour measurement interval.

REMARKS.--Interruptions in the water-quality record were due to malfunction of the instrument. Water temperature records rated excellent. Dissolved oxygen records rated excellent except the following period: Nov. 28 to Dec. 13 rated good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 24.8°C, July 6, 2012; minimum, -0.5°C, on many days during winter periods.

DISSOLVED OXYGEN: Maximum, 15.5 mg/L, Mar. 13-15, 2005; minimum, 5.4 mg/L, Oct. 30, 1996.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 24.5°C, July 18; minimum, 0.0°C, on many days during winter period.

DISSOLVED OXYGEN: Maximum, 13.8 mg/L, Jan. 21; minimum recorded, 7.1 mg/L, Sept. 10, but may have been lower during instrument malfunction July 17-23.

04124000 MANISTEE RIVER NEAR SHERMAN, MI—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	October			November			December			January		
1	11.1	9.5	10.4	6.1	5.4	5.7	4.0	2.8	3.3	1.0	0.6	0.8
2	11.7	9.8	10.8	6.0	5.6	5.8	4.9	4.0	4.6	0.6	0.4	0.5
3	11.2	10.1	10.6	5.7	5.2	5.5	6.8	4.7	5.4	0.8	0.6	0.7
4	12.9	10.8	11.8	5.7	5.3	5.5	6.9	6.1	6.6	0.8	0.4	0.6
5	12.5	11.2	11.7	5.4	4.6	5.1	6.1	4.6	5.3	0.9	0.0	0.3
6	11.4	10.3	10.7	4.6	4.3	4.5	4.6	4.1	4.2	1.6	0.9	1.3
7	10.3	8.8	9.5	4.9	4.2	4.6	4.3	4.0	4.1	2.0	1.4	1.7
8	8.8	7.5	8.3	4.9	4.3	4.6	4.1	3.7	3.9	2.3	1.6	2.0
9	9.2	7.9	8.6	5.6	4.7	5.0	3.7	2.5	3.1	2.8	2.1	2.4
10	8.9	7.8	8.3	6.6	5.6	6.0	2.7	2.5	2.6	2.7	1.9	2.3
11	7.8	7.2	7.4	8.9	6.6	7.7	2.5	2.2	2.3	3.6	2.7	3.1
12	7.7	6.3	7.0	8.9	6.6	8.0	2.3	1.9	2.1	4.6	3.6	4.2
13	7.0	6.4	6.7	6.6	5.5	6.2	2.8	2.0	2.4	4.3	3.3	3.9
14	8.7	7.0	7.9	5.5	4.5	4.8	2.7	2.1	2.4	3.3	1.9	2.6
15	8.6	8.4	8.5	4.7	4.1	4.4	3.0	2.4	2.7	1.9	0.8	1.3
16	8.7	7.8	8.3	4.5	3.8	4.2	4.1	3.0	3.6	0.8	0.1	0.3
17	9.9	8.3	9.1	4.5	3.6	4.0	4.4	4.1	4.3	0.4	0.0	0.3
18	10.2	9.9	10.0	4.6	3.6	4.1	4.4	4.1	4.2	0.1	0.0	0.0
19	10.0	9.6	9.8	4.9	3.8	4.3	4.2	3.9	4.1	1.3	0.1	0.7
20	9.8	9.1	9.4	5.9	4.9	5.4	4.1	2.2	3.1	1.3	0.1	0.5
21	9.8	8.8	9.3	6.9	5.9	6.4	2.2	1.4	1.6	0.1	0.0	0.0
22	9.6	8.3	9.0	7.8	6.6	7.1	1.7	1.3	1.5	0.0	0.0	0.0
23	10.4	9.6	9.9	7.9	5.7	6.9	1.4	1.1	1.3	0.0	0.0	0.0
24	11.8	10.4	11.1	5.7	4.3	4.9	1.4	1.1	1.3	0.0	0.0	0.0
25	13.4	11.7	12.5	4.3	3.5	3.8	1.7	1.1	1.4	0.0	0.0	0.0
26	13.0	10.9	11.9	3.5	2.6	3.0	1.5	1.3	1.4	0.0	0.0	0.0
27	10.9	8.9	9.8	2.6	2.1	2.4	1.4	1.1	1.2	0.0	0.0	0.0
28	8.9	7.6	8.3	2.5	2.0	2.2	1.3	0.8	1.0	0.0	0.0	0.0
29	7.6	6.4	6.7	2.7	1.8	2.2	1.3	0.9	1.1	0.1	0.0	0.1
30	6.4	5.5	5.8	2.8	2.5	2.6	1.2	1.0	1.1	0.1	0.0	0.1
31	5.6	5.3	5.5	---	---	---	1.2	0.9	1.1	---	---	---
Month	13.4	5.3	9.2	8.9	1.8	4.9	6.9	0.8	2.8	---	---	---

04124000 MANISTEE RIVER NEAR SHERMAN, MI—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	February			March			April			May		
1	---	---	---	2.9	2.2	2.6	5.3	4.0	4.5	---	---	---
2	0.1	0.0	0.0	2.5	1.2	1.7	4.4	3.1	3.8	---	---	---
3	0.0	0.0	0.0	1.7	1.1	1.4	4.8	2.7	3.7	---	---	---
4	0.1	0.0	0.0	2.2	0.6	1.4	5.5	3.2	4.3	---	---	---
5	0.0	0.0	0.0	2.4	0.7	1.6	6.3	4.3	5.3	---	---	---
6	0.2	0.0	0.0	3.4	1.9	2.6	5.8	5.0	5.4	---	---	---
7	0.1	0.0	0.0	3.4	2.9	3.1	5.6	5.0	5.3	---	---	---
8	0.1	0.0	0.0	3.6	1.8	2.8	5.0	4.3	4.4	---	---	---
9	0.2	0.0	0.0	3.5	2.3	3.0	4.3	4.0	4.2	---	---	---
10	0.1	0.0	0.1	4.2	3.5	3.8	4.0	3.5	3.7	---	---	---
11	0.1	0.0	0.1	4.5	4.0	4.2	3.5	2.2	2.9	---	---	---
12	0.1	0.0	0.0	4.0	2.8	3.3	2.3	1.9	2.1	---	---	---
13	0.2	0.0	0.1	3.1	2.3	2.7	2.6	2.0	2.3	---	---	---
14	1.6	0.1	0.5	2.9	1.4	2.2	3.7	2.3	3.0	---	---	---
15	1.9	1.5	1.7	3.6	2.4	2.9	5.0	3.6	4.3	---	---	---
16	1.6	0.5	1.1	3.2	2.5	2.9	7.0	4.7	5.7	---	---	---
17	0.5	0.0	0.1	3.4	2.0	2.7	---	---	---	---	---	---
18	1.4	0.0	0.5	2.8	1.8	2.3	---	---	---	---	---	---
19	1.4	0.7	1.1	2.4	1.8	2.1	---	---	---	---	---	---
20	0.7	0.1	0.3	2.1	1.6	1.8	---	---	---	---	---	---
21	0.5	0.0	0.3	1.9	1.3	1.6	---	---	---	---	---	---
22	0.6	0.0	0.3	2.2	1.5	1.9	---	---	---	17.4	16.0	16.5
23	1.3	0.6	0.9	3.1	2.1	2.6	---	---	---	16.0	13.6	14.7
24	2.4	1.3	1.8	3.9	2.9	3.3	---	---	---	14.1	12.2	13.2
25	2.4	1.5	2.0	4.1	3.0	3.6	---	---	---	14.0	11.5	12.7
26	3.1	1.8	2.5	4.9	3.8	4.3	---	---	---	14.2	11.6	12.9
27	3.3	2.7	3.0	5.9	3.9	4.9	---	---	---	14.8	12.3	13.6
28	3.2	2.9	3.1	6.6	4.3	5.4	---	---	---	14.4	13.6	13.9
29	---	---	---	6.8	4.7	5.8	---	---	---	15.0	13.7	14.3
30	---	---	---	6.4	4.8	5.8	---	---	---	17.5	14.2	15.8
31	---	---	---	6.2	5.3	5.8	---	---	---	19.0	16.6	17.8
Month	---	---	---	6.8	0.6	3.1	---	---	---	---	---	---

04124000 MANISTEE RIVER NEAR SHERMAN, MI—Continued

 TEMPERATURE, WATER, DEGREES CELSIUS
 WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	June			July			August			September		
1	18.8	17.7	18.3	19.0	17.0	18.1	18.3	15.9	17.0	19.4	17.6	18.6
2	18.5	15.4	17.0	17.9	16.2	16.9	18.3	16.2	17.3	18.9	16.9	17.7
3	16.1	14.0	15.1	17.8	16.3	17.0	18.1	16.0	17.1	17.7	15.7	16.7
4	15.1	13.3	14.2	18.1	16.3	17.2	17.4	15.7	16.6	16.8	15.3	16.0
5	14.0	13.1	13.5	19.9	16.3	18.1	16.8	15.0	15.8	15.6	13.8	14.8
6	14.9	12.9	13.8	20.8	17.5	19.1	17.1	15.5	16.2	15.6	13.0	14.4
7	16.4	13.3	14.8	20.5	18.5	19.6	18.3	16.0	17.1	16.5	14.7	15.6
8	15.4	14.0	14.6	20.0	18.8	19.2	18.6	15.8	17.3	17.0	15.5	16.3
9	15.8	13.5	14.7	20.3	18.3	19.3	18.1	16.0	17.1	16.5	15.3	16.0
10	16.3	14.8	15.5	20.3	18.7	19.5	17.5	15.8	16.8	19.0	16.1	17.5
11	17.9	15.2	16.5	20.2	17.7	18.9	16.8	15.3	16.0	18.9	17.5	18.3
12	18.2	16.0	17.2	20.6	17.6	19.1	17.6	14.8	16.2	18.4	16.7	17.6
13	18.1	16.4	17.2	21.0	18.1	19.5	17.0	15.0	15.7	16.7	15.0	15.7
14	18.6	15.6	17.1	21.8	18.6	20.2	15.8	13.9	15.0	15.0	12.9	14.0
15	17.6	15.9	16.5	22.5	19.6	21.1	16.6	13.9	15.2	14.1	13.0	13.3
16	18.7	15.8	17.1	23.7	20.5	22.1	17.0	14.2	15.6	13.7	12.3	12.9
17	18.9	16.7	17.8	23.9	21.6	22.7	17.8	14.6	16.2	13.2	11.2	12.3
18	19.3	17.0	18.1	24.5	21.8	23.1	18.1	15.0	16.7	13.1	11.4	12.3
19	18.8	16.1	17.5	24.0	22.3	23.2	18.4	15.7	17.2	15.0	12.8	13.8
20	19.1	16.1	17.6	23.3	21.3	22.3	19.2	16.6	17.9	15.5	14.6	15.1
21	18.6	17.0	17.9	21.3	18.9	19.7	20.3	17.4	18.9	15.2	14.2	14.8
22	19.7	17.6	18.5	20.7	17.9	19.4	19.9	18.5	19.1	14.2	12.4	13.3
23	20.1	18.2	19.1	---	---	---	19.2	16.8	18.1	12.6	10.9	11.9
24	21.2	18.8	20.0	18.5	16.1	17.4	19.0	16.5	17.9	12.4	10.5	11.6
25	20.8	19.2	20.0	18.5	15.7	17.2	19.8	16.8	18.3	12.6	10.5	11.6
26	21.5	18.8	20.2	18.0	16.5	17.3	20.4	18.4	19.4	12.6	10.5	11.7
27	21.3	19.4	20.4	17.3	16.0	16.6	19.8	18.6	19.0	13.0	10.7	12.0
28	21.3	19.4	20.4	16.4	14.9	15.7	---	---	---	13.9	11.5	12.8
29	20.7	19.4	20.0	16.5	15.0	15.7	---	---	---	14.6	13.2	13.9
30	20.2	18.2	19.2	16.7	14.8	15.8	19.9	18.9	19.3	13.7	12.0	13.0
31	---	---	---	17.0	15.7	16.3	20.0	18.1	19.0	---	---	---
Month	21.5	12.9	17.3	---	---	---	---	---	---	19.4	10.5	14.5

04124000 MANISTEE RIVER NEAR SHERMAN, MI—Continued

DISSOLVED OXYGEN, WATER, UNFILTERED, MILLIGRAMS PER LITER
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	October			November			December			January		
1	11.0	10.3	10.6	11.7	11.4	11.5	12.6	12.2	12.5	13.5	13.2	13.3
2	10.9	10.3	10.6	11.8	11.4	11.6	12.2	11.8	11.9	13.6	13.3	13.4
3	10.7	10.2	10.4	11.9	11.6	11.7	11.8	11.2	11.6	13.5	13.3	13.4
4	10.6	10.0	10.3	12.0	11.6	11.8	11.4	11.0	11.2	13.5	13.3	13.4
5	10.5	9.8	10.2	12.0	11.6	11.8	11.8	11.2	11.5	13.7	13.4	13.6
6	10.7	10.0	10.4	12.0	11.8	11.9	11.9	11.7	11.8	13.4	13.1	13.2
7	11.0	10.4	10.7	12.2	11.8	12.0	12.0	11.7	11.9	13.2	13.0	13.1
8	11.4	10.8	11.0	12.1	11.9	12.0	12.1	11.8	11.9	13.1	12.9	13.0
9	11.2	10.8	11.0	11.9	11.7	11.8	12.3	12.0	12.1	12.9	12.7	12.8
10	11.1	10.6	10.8	11.7	11.4	11.5	12.5	12.2	12.3	13.1	12.8	13.0
11	11.2	10.9	11.1	11.4	10.7	11.1	12.7	12.3	12.5	12.9	12.3	12.5
12	11.8	11.1	11.5	11.0	10.5	10.7	12.9	12.5	12.7	12.3	12.0	12.1
13	11.4	11.2	11.3	11.7	11.0	11.4	12.9	12.6	12.8	12.1	12.0	12.0
14	11.2	10.3	10.8	12.3	11.7	12.0	13.0	12.7	12.8	12.8	12.1	12.5
15	10.4	10.0	10.2	12.4	12.1	12.2	12.7	12.4	12.6	13.3	12.8	13.1
16	10.6	10.2	10.3	12.5	12.1	12.3	12.4	12.0	12.1	13.4	13.3	13.4
17	10.5	10.1	10.3	12.6	12.3	12.4	12.0	11.8	11.9	13.6	13.3	13.4
18	10.1	9.9	10	12.5	12.2	12.4	12.0	11.8	11.9	13.7	13.5	13.6
19	10.1	9.9	10	12.4	12.1	12.2	12.2	11.9	12.0	13.5	13.1	13.3
20	10.3	10.0	10.2	12.1	11.6	11.7	12.2	11.9	12.0	13.5	13.0	13.3
21	10.6	10.2	10.4	11.6	11.3	11.5	12.8	12.1	12.5	13.8	13.5	13.6
22	10.8	10.4	10.6	11.4	10.9	11.2	13.1	12.8	13.0	13.7	13.5	13.6
23	10.5	10.2	10.3	11.3	10.7	11.0	13.1	12.9	13.0	13.5	13.0	13.3
24	10.2	9.9	10.1	11.9	11.2	11.6	13.2	13.0	13.1	13.1	12.8	12.9
25	9.9	9.5	9.8	12.2	11.8	12.0	13.3	13.1	13.2	12.9	12.7	12.8
26	10.0	9.4	9.7	12.7	12.1	12.4	13.3	13.1	13.2	12.8	12.6	12.7
27	10.6	9.9	10.3	13.0	12.6	12.8	13.4	13.1	13.2	12.7	12.6	12.6
28	11.1	10.5	10.8	13.0	12.7	12.9	13.5	13.2	13.3	12.6	12.5	12.5
29	11.5	10.9	11.3	13.1	12.7	12.9	13.3	13.2	13.2	12.5	12.4	12.4
30	11.5	11.2	11.4	12.8	12.6	12.7	13.4	13.1	13.2	12.5	12.4	12.5
31	11.6	11.4	11.5	---	---	---	13.3	13.1	13.2	---	---	---
Month	11.8	9.4	10.6	13.1	10.5	11.9	13.5	11.0	12.5	---	---	---

04124000 MANISTEE RIVER NEAR SHERMAN, MI—Continued

DISSOLVED OXYGEN, WATER, UNFILTERED, MILLIGRAMS PER LITER
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	February			March			April			May		
1	---	---	---	12.9	12.5	12.7	12.0	11.5	11.8	---	---	---
2	13.2	13.0	13.2	13.2	12.8	13.0	12.4	12.0	12.2	---	---	---
3	13.2	12.9	13.1	13.3	13.0	13.2	12.6	12.3	12.5	---	---	---
4	13.1	12.9	13.1	13.3	13.1	13.2	12.4	11.9	12.3	---	---	---
5	13.1	13.0	13.1	13.3	13.0	13.1	12.1	11.7	11.9	---	---	---
6	13.1	12.9	13.0	13.0	12.7	12.9	11.9	11.5	11.7	---	---	---
7	13.1	12.9	12.9	12.8	12.5	12.7	11.7	11.4	11.6	---	---	---
8	13.0	12.9	12.9	13.0	12.7	12.8	11.9	11.6	11.8	---	---	---
9	13.2	13.0	13.0	12.9	12.6	12.7	12.0	11.9	12.0	---	---	---
10	13.2	13.0	13.1	12.6	12.1	12.3	12.2	12.0	12.1	---	---	---
11	13.0	12.6	12.7	12.1	11.8	11.9	12.2	12.1	12.1	---	---	---
12	12.8	12.6	12.7	12.2	11.8	12.0	12.4	12.2	12.4	---	---	---
13	12.8	12.4	12.7	12.5	12.2	12.4	12.5	12.4	12.5	---	---	---
14	12.5	12.2	12.3	12.9	12.5	12.8	12.4	12.1	12.3	---	---	---
15	12.9	12.5	12.7	12.7	12.3	12.5	12.1	11.6	11.9	---	---	---
16	13.3	12.9	13.1	12.6	12.3	12.4	11.6	11.3	11.5	---	---	---
17	13.6	13.3	13.5	12.8	12.5	12.7	---	---	---	---	---	---
18	13.6	13.1	13.4	12.8	12.6	12.7	---	---	---	---	---	---
19	13.1	12.9	13.0	12.8	12.5	12.6	---	---	---	---	---	---
20	13.6	13.1	13.3	13.0	12.7	12.8	---	---	---	---	---	---
21	13.7	13.5	13.6	13.1	12.8	13.0	---	---	---	---	---	---
22	13.7	13.4	13.5	13.0	12.8	12.9	---	---	---	9.4	9.2	9.3
23	13.4	13.1	13.2	12.9	12.6	12.8	---	---	---	10.0	9.3	9.6
24	13.1	12.9	13.0	12.6	12.4	12.5	---	---	---	10.6	9.9	10.3
25	13.0	12.8	12.9	12.5	12.2	12.3	---	---	---	10.7	10.2	10.5
26	12.8	12.5	12.8	12.3	12.1	12.2	---	---	---	10.7	10.2	10.4
27	12.5	12.3	12.4	12.3	11.9	12.1	---	---	---	10.5	10.1	10.3
28	12.5	12.2	12.4	12.1	11.7	12.0	---	---	---	10.1	9.9	10
29	---	---	---	12.0	11.6	11.8	---	---	---	10.3	9.8	10.0
30	---	---	---	11.9	11.6	11.7	---	---	---	10.2	9.6	9.9
31	---	---	---	11.6	11.4	11.5	---	---	---	9.6	9.1	9.4
Month	---	---	---	13.3	11.4	12.5	---	---	---	---	---	---

04124000 MANISTEE RIVER NEAR SHERMAN, MI—Continued

DISSOLVED OXYGEN, WATER, UNFILTERED, MILLIGRAMS PER LITER
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	June			July			August			September		
1	9.1	8.8	9.0	10.1	9.1	9.6	9.6	8.8	9.2	9.0	8.3	8.6
2	9.4	8.7	9.0	10.3	9.3	9.8	9.5	8.7	9.1	9.1	8.3	8.7
3	10.3	9.4	9.9	10.2	9.4	9.8	9.5	8.7	9.1	9.5	8.6	9.0
4	10.4	9.8	10.2	10.2	9.4	9.8	9.7	8.8	9.2	9.5	8.8	9.1
5	10.5	10.0	10.3	10.2	9.4	9.7	9.7	8.9	9.3	9.9	9.1	9.5
6	10.7	10.1	10.4	10.0	9.1	9.5	9.6	8.8	9.2	10.0	9.2	9.5
7	10.6	10.0	10.2	9.8	8.8	9.2	9.5	8.7	9.1	9.5	9.0	9.2
8	10.4	9.8	10.1	9.2	8.7	8.9	9.6	8.7	9.1	9.2	8.3	8.7
9	10.5	9.9	10.2	9.4	8.7	9.1	9.6	8.6	9.1	8.8	7.8	8.1
10	10.2	9.7	9.9	9.2	8.7	8.9	9.6	8.7	9.1	8.3	7.1	7.8
11	10.3	9.6	9.9	---	---	---	9.8	8.8	9.3	9.0	7.7	8.4
12	10.0	9.4	9.7	---	---	---	9.8	9.0	9.4	9.1	8.1	8.6
13	10.1	9.1	9.6	9.6	8.6	9.1	9.8	8.9	9.3	9.7	8.5	9.0
14	10.3	9.4	9.8	9.5	8.6	9.0	10.0	9.1	9.5	10.1	9.2	9.6
15	10.0	9.4	9.7	9.4	8.5	8.9	9.9	9.2	9.5	9.8	9.3	9.5
16	10.0	9.3	9.6	9.3	8.3	8.7	9.9	9.1	9.5	10.3	9.4	9.8
17	9.7	9.1	9.4	---	---	---	9.8	9.1	9.4	10.5	9.6	10.0
18	9.9	9.1	9.5	---	---	---	9.8	8.9	9.3	10.5	9.6	10.0
19	10.1	9.2	9.6	---	---	---	9.5	8.7	9.1	10.1	9.2	9.7
20	10.2	9.3	9.7	---	---	---	9.4	8.5	8.9	9.2	8.7	8.9
21	9.8	9.2	9.5	---	---	---	9.2	8.4	8.8	9.3	8.8	9.0
22	9.8	9.0	9.4	---	---	---	9.0	8.2	8.6	9.8	9.1	9.5
23	9.6	8.9	9.2	---	---	---	9.4	8.4	8.9	10.5	9.6	10.0
24	9.6	8.8	9.2	9.7	8.7	9.1	9.5	8.6	9.0	10.6	9.9	10.2
25	9.5	8.6	9.1	9.7	8.8	9.2	9.4	8.6	8.9	10.6	9.9	10.2
26	9.6	8.7	9.1	9.4	8.7	9.0	9.0	8.3	8.6	10.6	9.9	10.2
27	9.5	8.6	9.0	9.4	8.6	9.0	8.5	8.2	8.3	10.6	9.8	10.1
28	9.4	8.5	9.0	9.7	8.9	9.3	---	---	---	10.4	9.7	10
29	9.5	8.6	9.0	9.8	9.0	9.4	---	---	---	10.0	9.3	9.6
30	10.0	8.8	9.4	9.9	9.1	9.5	8.3	8.0	8.1	10.2	9.3	9.7
31	---	---	---	9.6	9.0	9.3	8.8	8.1	8.4	---	---	---
Month	10.7	8.5	9.6	---	---	---	---	---	---	10.6	7.1	9.3